

## QUARTERLY REPORT

### July – September 2003

### Ames Laboratory

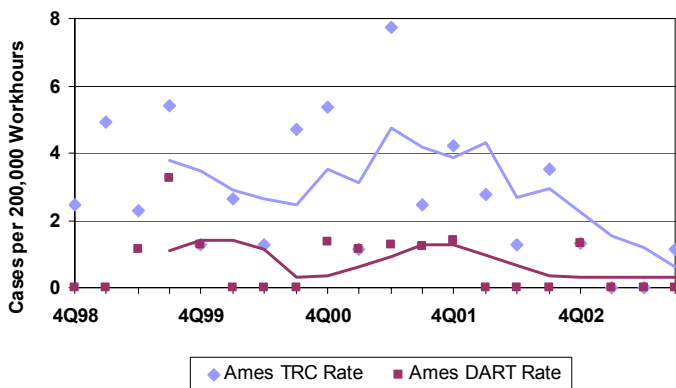
#### Safety-Related Mission Areas of Interest

Ames Laboratory's mission is to conduct fundamental research in the physical, chemical, materials, and mathematical sciences and engineering which underlie energy generating, conversion, transmission and storage technologies, environmental improvement, and other technical areas essential to national needs. Ames core competencies are in the areas of advanced materials synthesis, characterization and processing, computational and theoretical sciences, environmental characterization and remediation technologies.

#### Areas for Management Attention

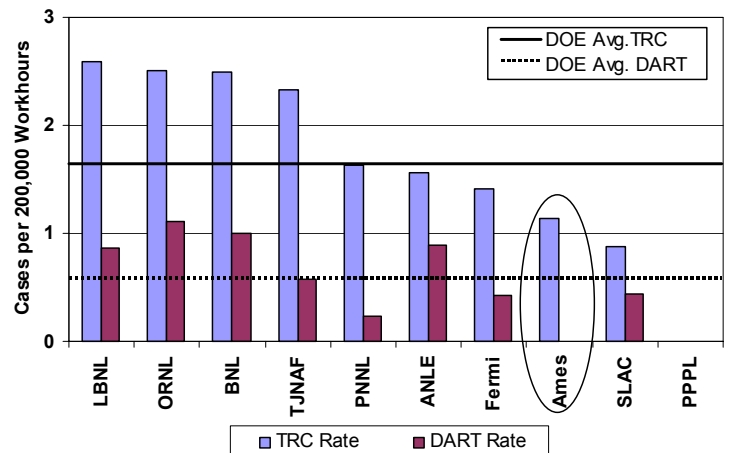
1. There was one Occurrence Report and one PAAA NTS Report this quarter. Both reports are a result of the same issue, sealed source documentation was not readily available.
2. Ames Laboratory has experienced very positive improvements in their safety performance in that only one recordable accident/injury and no lost work day cases were experienced for the first three quarters of 2003.
3. The Ames Area Office performed a document review of the Ames Laboratory PAAA Program from May 15, 2003 through May 30, 2003. Six Opportunities for improvement were identified. The corrective actions are being tracked by the Ames Area Office.

TRC and DART: 4-Period Moving Average\*



\*Data as of November 21, 2003; composite of all contractors and subcontractors.

TRC and DART: Ranking for SC Sites\*



\*Ranked by TRC for 2003-3rd Quarter

<b>Key Performance Areas</b> (There was 1 occurrence at Ames for the 3rd Quarter)	
<b>Near Misses</b> <ul style="list-style-type: none"> <li>• None</li> </ul>	<b>Criticality Infractions</b> <ul style="list-style-type: none"> <li>• None</li> </ul>
<b>Radiological Concerns</b> <ul style="list-style-type: none"> <li>• Sealed source documentation was not readily available for two sources. The sealed sources were and kept in a secured alarmed and shielded storage area. Leak checks have not detected any leaks on all previous checks. No exposure resulted from this occurrence. Both sources have been properly transferred and are no longer on site. There are four corrective actions developed to address concern.</li> </ul>	<b>AB Infractions</b> <ul style="list-style-type: none"> <li>• None</li> </ul>
<b>Shipping QA</b> <ul style="list-style-type: none"> <li>• None</li> </ul>	<b>Safeguards and Security</b> <ul style="list-style-type: none"> <li>• None</li> </ul>
<b>Occupational Safety/Industrial Hygiene</b> <ul style="list-style-type: none"> <li>• None</li> </ul>	<b>Environmental Releases/Compliance</b> <ul style="list-style-type: none"> <li>• None</li> </ul>

### Progress on Safety Management Initiatives

- Ames Laboratory in coordination with the Ames Area Office has scheduled an Integrated Safety Management System review for early in 2004. The focus of the review will be the effectiveness of Ames Laboratory's ISM implementation.
- Ames Laboratory is actively seeking disposition paths for unneeded radiological materials. Recently, a PuBe source was disposed of and an AmLi source was transferred to ANL-West for their use. Disposition paths for remaining items are being evaluated with assistance from DOE.

## QUARTERLY REPORT

### July - September 2003

### Argonne National Laboratory – East (ANL-E)

#### Safety-Related Mission Areas of Interest

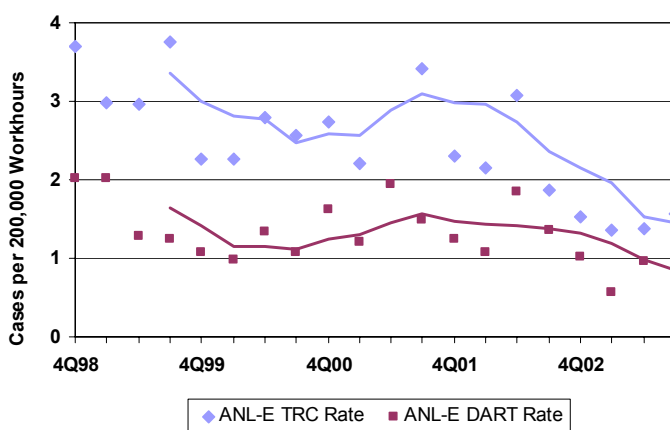
ANL-E supports DOE's missions in science, energy resources, environmental stewardship, and national security, with lead roles in science, operation of scientific facilities, and energy.

1. Off-site disposal of contact handled transuranic (TRU) waste is continuing. This is resulting in a) significant reductions in the on-site inventory of TRU waste and consequently, a reduction in radiological risk, and b) a reduction in operational waste management costs. Through September 2003, 87% (331 drums) of the contact handled debris TRU waste had been shipped out.
2. The EM funded environmental remediation project at ANL-E has been completed ahead of schedule and under budget. The 10-year project documented regulatory approval of the risk based cleanup of more than 400 actual and potential release sites. Long term stewardship (LTS), such as maintenance of engineered barriers, operation of a major phytoremediation plantation, and hydraulic containment of one area of contaminated ground water, is continuing. Funding for LTS is expected to transfer from EM to SC in FY05.

#### Areas for Management Attention

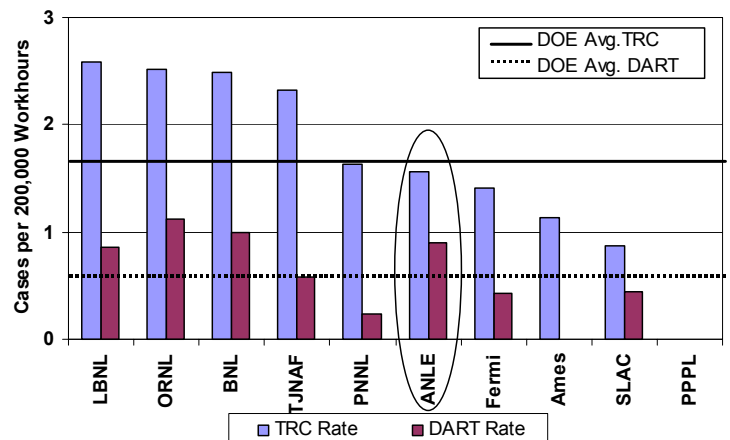
None

TRC and DART: 4-Period Moving Average\*



\*Data as of November 21, 2003; composite of all contractors and subcontractors.

TRC and DART: Ranking for SC Sites\*



\*Ranked by TRC for 2003-3RD Quarter

<b>Key Performance Areas</b> (There were 4 occurrences at ANL-E for the 3rd quarter)	
<b>Near Misses (0)</b> <ul style="list-style-type: none"> <li>None</li> </ul>	<b>Occupational Safety/Industrial Hygiene (0)</b> <ul style="list-style-type: none"> <li>None</li> </ul>
	<b>Radiological Concerns (2)</b> <ul style="list-style-type: none"> <li>A bag of contaminated gloves was found in nonradioactive trash. <i>CA: Communications on proper monitoring and disposal of contaminated and suspect items have been reinforced. This includes retraining of personnel and revision of the applicable operating procedure.</i></li> <li>Two workers (with supplied air) were removing obsolete equipment in a high contamination area. An air line was not properly wiped prior to the workers doffing their outer layer of protective equipment, resulting in skin contamination of one worker. <i>CA: Work was stopped immediately and the worker was successfully decontaminated. Root cause corrective actions are being implemented.</i></li> </ul>
	<b>Environmental Release/Compliance (0)</b> <ul style="list-style-type: none"> <li>None</li> </ul>
<b>Shipping QA (1)</b> <ul style="list-style-type: none"> <li>A shipment consisting of nine bins of Low Level Radioactive Waste (LLRW) shipped from ANL-E was identified as being overweight by approximately 16,000 pounds at a Nebraska DOT state inspection scales. <i>CA: Reweighed all containers; updated container documentation; and reviewed and updated procedures related to waste packaging to ensure there is a requirement to weigh waste shipments on a calibrated scale.</i></li> </ul>	<b>Criticality Concerns (0)</b> <ul style="list-style-type: none"> <li>None</li> </ul>
<b>Fire Safety (0)</b> <ul style="list-style-type: none"> <li>None</li> </ul>	<b>AB Infractions (0)/Potential Infractions (0)</b> <ul style="list-style-type: none"> <li>None</li> </ul>
<b>Safeguards and Security (0)</b> <ul style="list-style-type: none"> <li>Not available</li> </ul>	<b>Material Handling (0)</b> <ul style="list-style-type: none"> <li>None</li> </ul>
<b>Equipment Degradation (1)</b> The vertical jack of a diffractometer (\$ 500k value) was being operated when the jack failed, dropping the diffractometer and its granite support table to one side. No personnel were in the immediate area. Investigation showed that a load-bearing component was under designed and broke into pieces. <i>CA: Facility personnel are working with the vendor to pursue corrective actions and compensation.</i>	<b>Conduct of Operations (0)</b> <ul style="list-style-type: none"> <li>None</li> </ul>
<b>Electrical Safety (0)</b> <ul style="list-style-type: none"> <li>None</li> </ul>	<b>Other (0)</b> <ul style="list-style-type: none"> <li>None</li> </ul>

## Progress on Safety Management Initiatives

- The Nuclear Regulatory Commission team (NRC) surveyed ANL-E and issued their report as a punchlist of items that would need to be satisfied for a successful transition to NRC regulation of ANL-E, based on assumptions that: 1. ANL-E is the license-holder; 2. NRC presumes authority to regulate accelerator-produced radioactivity; 3. NRC would regulate accelerator-based x-ray radiography sources using 10 CFR 34, the regulations for byproduct material source-based radiography. ANL-E used the NRC report to estimate costs for executing the punchlist. After validation by both ANL-E and DOE-CH financial offices, the resulting estimate was \$ 3.8 million of identified costs for transition to NRC regulation of ANL-E.
- The Occupational Safety and Health Administration (OSHA) surveyed ANL-E and issued a report of findings and recommendations. Based on this report and on additional findings identified by ANL-E, ANL-E developed a cost estimate of \$ 2.6 million to achieve OSHA compliance and implement the OSHA recommendations.
- Argonne Area Office and ANL-E have created a working group to examine the OSHA findings and recommendations, and to identify priorities for corrective action for root causes and ISM program deficiencies.
- A contract has been awarded for the decontamination and decommissioning of the Juggernaut reactor. Current projected completion date is 2<sup>nd</sup> quarter of FY05.

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## QUARTERLY REPORT

### July-September 2003

## Brookhaven National Laboratory (BNL)

### Safety-Related Mission Areas of Interest

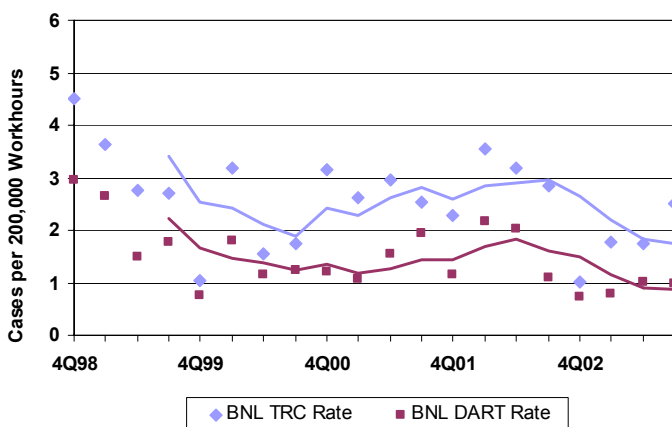
The BNL major mission is to conceive, design, construct, and operate complex, leading edge, user-oriented facilities in response to the needs of the DOE and the international community of users; carry out basic and applied research in long-term, high-risk programs at the frontier of science; develop advanced technologies that address national needs; and educate new generations of scientists and engineers.

- On August 14, 2003 at approximately 1610 hours the Long Island Power Authority (LIPA), BNL's power supplier terminated supply to BNL as part of an unscheduled power outage that affected the entire Northeastern United States. Except for facilities with emergency generators and/or uninterruptible power supplies, the site was without power. Emergency Operations Procedures were initiated. The Laboratory was restricted to essential personnel only. A Base Operational Emergency was declared with an emergency notification and ORPs report issued. LIPA began restoring power in stages starting at 1900 hours on the 14<sup>th</sup>. By 1900 hours on Friday August 15, sufficient power capacity from LIPA allowed BNL to resume operations. There were no injuries, accidents, or environmental releases as a result of this incident. Property damage was limited to mainly electrical devices, resulting in total monetary damages of approximately \$100,000.
- The BNL meadow marsh area (contaminated with heavy metals as a result of sewage sludge experiments in the 1970's) was recently remediated. The area ponds presented an ecological risk to the Tiger Salamander (a New York State endangered species) that use the area as a breeding ground. Following the removal and disposal of contaminated soils, new ponds were constructed and the area re-vegetated for continued use by the species.

### Areas for Management Attention

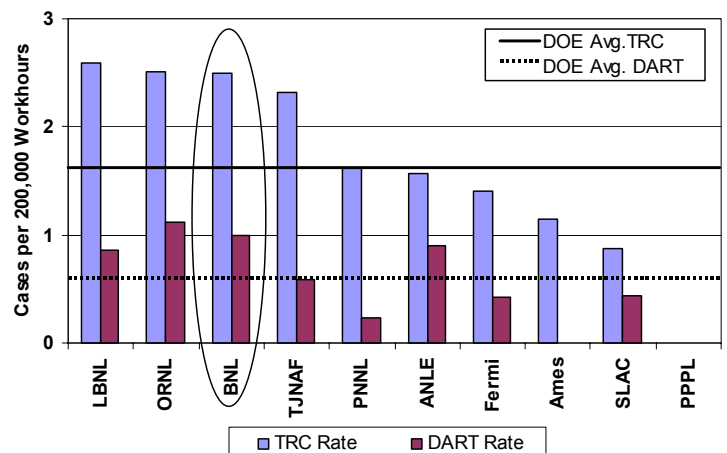
- A graduate student in the Chemistry Department sustained a severe injury to the central vision of both eyes while working with a Class 4 pulsed Alexandrite laser in a surface science experiment. The student was attempting to repeat an alignment procedure that he did not clearly understand. This incident resulted in an immediate suspension of all laser activities at the Laboratory until an investigation and restart procedure could be developed. Investigation committees and an independent team from BAO that also included personnel from the Chicago Operations Office were convened. A stand down and discontinuance of all research use of Class 3B and 4 lasers was instituted. Follow-up actions included "town safety meetings" with research staff, laboratory management and supervisors and resulted in the formal development and implementation of provisions for restart. At the time of this report, all lasers that needed to be restarted have been restarted. Corrective actions and judgment of needs from the internal and independent investigations are being finalized.
- Due to the significant number of incidents (especially near misses) that have occurred at BNL over the past several months, and the increased BAO management attention to these issues, the Assistant Laboratory Director for ESH&Q commissioned a Multi-disciplinary Task Force to investigate. The task force was charged to examine the recent series of events, review the facts and circumstances of these incidents, evaluate the causes and determine changes necessary to reduce the number of safety-related incidents.

TRC and DART: 4-Period Moving Average\*



\*Data as of November 21, 2003; composite of all contractors and subcontractors.

TRC and DART: Ranking for SC Sites\*



\*Ranked by TRC for 2003-3rd Quarter

## Key Performance Areas

(There were 11 occurrences at BNL for the 3rd Quarter, 9 of the 11 occurrences included here are associated with SC and 2 of the 11 occurrences are associated with EM)

### Near Misses (3)

- A machinist mistakenly programmed a milling machine to operate at a rotation speed of 7500 rotations per minute (rpm) instead of the required design operating speed of 750 rpm, resulting in the projection of the arbor and saw blades that struck overhead structural beams and the machine electrical panel. No injuries occurred as a result of this incident. *CA: 1) Machine program was rewritten to add a step for speed verification. 2) Policy established to speed test fabricated equipment.. 3) Incorporated an exclusion zone around machine. 4) Reaffirm with machinist to support stock, use exclusion zones and verify spindle speeds. 5) Additional requirement to perform ESH review of all new heavy equipment. 6) Modify work planning procedure to require formal review of similar fabricated tools). 7) Develop and communicate lessons learned.*
- At the former Hazardous Waste Management Facility, a forklift being used to transport a trailer-mounted generator contacted an overhead telephone cable, resulting in the cable parting, and the pole listing at a 15-degree angle causing the cables (including 208 VAC) to droop within 4 feet of the road surface. There was no direct contact with the 208 VAC or injuries. *CA: 1) Project implemented a stand-down and all-hands safety meeting. 2) Forklift operator qualifications were rescinded for the duration of the project. 3) Job Safety Analysis was rewritten to mandate a full-time spotter. 4) A no-drive zone under overhead lines was established. 5) All overhead lines within the work zone were removed. (EM)*
- While loading a rail car at the Chemical Holes area, the rail car being loaded with low-level radioactive waste (soil and debris) began to roll slowly. The rail car was attached to another loaded car at the time and both cars rolled slowly into and coupled to two other cars. All four cars rolled approximately 50 feet until they connected with a rail car with chocks on the wheels being worked on at a loading ramp and stopped. It was verified that the car brakes had been applied but wheel chocks were not used. There were no injuries, spread of contamination or equipment damage. *CA: 1) Project stood down to determine cause and corrective actions. 2) All hands safety meeting to review procedures was conducted. 3) The technical work document and job safety analysis were revised to mandate the use of wheel chocks. 4) Owner of the rail car provided documentation of the cars inspections and satisfactory condition of the brakes. (EM)*

### Radiological Concerns (3)

- Legacy contamination was discovered outside a posted controlled area during a survey of a hood at Building 815. The survey being conducted in preparation of reusing the lab space identified 700k disintegrations per minute (dpm) fixed contamination, and 4,000dpm loose contamination. *CA: Renovation work was suspended in the lab until all other accessible workspaces can be surveyed. Discovered contamination was removed.*
- A chemist in the hot lab accidentally allowed her hair to touch a contaminated pipet that reading approximately 20,000dpm and contaminated her hair. *CA: 1) Provide clearly labeled trays for work with radioisotopes. 2) Train personnel in the group on the importance of establishing a location and labeling radioactive material prior to starting experiment. 3) Train personnel in assuring prompt categorization of any radioactive skin or hair contamination.*
- A Radiological Control Technician was removing his Full Face Air Purifying Respirator as he exited a contamination area when the lens separated from the lens clamps. There was no personnel contaminations, radiation exposures or spread of contamination. Inspection of 100 other respirators indicated 3 with missing face shield bolts and/or retaining nuts. *CA: 1) Cleaning procedure was modified to incorporate an independent verification. 2) Training provided on revised procedure. 3) DOE and BNL lessons learned submitted. 4) All respirators on site were checked. 5) Established a inspection and acceptance criteria*



## Key Performance Areas

(There were 11 occurrences at BNL for the 3rd Quarter, 9 of the 11 occurrences included here are associated with SC and 2 of the 11 occurrences are associated with EM)

<b>Environmental Releases/Compliance (1)</b> <ul style="list-style-type: none"> <li>A 2 inch steel pipe hydraulic feed line to an elevator in Building 463 failed during acceptance testing, releasing approximately 80 gallons of hydraulic fluid beneath the floor slab. . The pipe that failed was approximately 60 years old and the location did not allow for visual inspection. <i>CA: Identify all elevator locations at BNL for concealed hydraulic lines and re-route where possible. 2) Re-route 463 hydraulic line to an accessible location. 3) Proposed appropriate remediation action plan to appropriate authorities.</i></li> </ul>	<b>Occupational Safety/Industrial Hygiene (2)</b> <ul style="list-style-type: none"> <li>A graduate student received a severe injury to both eyes while working with a class 4 laser. See details in "Areas for Management Attention"</li> <li>A user at the NSLS injured his hand on a piece of stock in a lathe. The stock which extended approximately 13" past the collet, bent to a 90-degree angle when the machine rpm's were increased and the user injured his hand when reaching across to lower the speed of the machine. <i>CA: 1) The injury and corrective actions were discussed at the users weekly meeting and with machine shop supervisors and staff. 2) Written guidance was developed for safe lathe operations and disseminated to appropriate personnel. 3) Refresher training for machine shop training is being proposed.</i></li> </ul>
<b>Safeguards and Security (0)</b> <ul style="list-style-type: none"> <li><b>(This incident is not reportable under ORPS criteria but is worthy of notice)</b> Brookhaven's September inventory check revealed that 100 reels of used copper cable, 200 cable connectors, and approximately 150 lbs. of copper blocks were missing and presumed stolen. The total value of the loss is estimated to be approximately \$86,000. The copper blocks and 200 of the missing connectors also contain embedded trace amounts of radioactive cobalt-60. If a member of the general public were to come in contact with the material, the expected dose would only be a small fraction of the federally permitted level established to protect human health. <i>CA: The FBI was called in to investigate. 2) Property protection procedures and practices have been reviewed and additional security measures have been/will be implemented. Due to the sensitive nature of this issue, more specific details are for limited distribution only.</i></li> </ul>	<b>Material Handling (1)</b> <ul style="list-style-type: none"> <li>A machinist was repositioning a heavy steel plate on a milling machine using a crane with a magnetic lifting device. He lifted the plate approximately 7" from the table on the machine when the magnet released the plate and it slid off onto the floor. There were no injuries, and only minor damage (a divot) was sustained to the concrete floor. <i>CA: 1) Require and complete basic rigging training for the disciplines involved in this incident. 2) Incorporate the magnetic lifting device into an annual inspection program. 3) Revise design review procedure to require same level of review for revised drawings including flagging material weight changes.</i></li> </ul>
<b>Equipment Degradation (0)</b> <ul style="list-style-type: none"> <li>None</li> </ul>	<b>Other (1)</b> <ul style="list-style-type: none"> <li>The Laboratory lost all facility power as a result of the Northeast power failure; see details in "Safety Related Mission Areas of Interest".</li> </ul>
<b>AB Infractions (0)/Potential Infractions (0)</b> <ul style="list-style-type: none"> <li>None</li> </ul>	<b>Electrical Safety (0)</b> <ul style="list-style-type: none"> <li>None</li> </ul>
<b>Shipping QA (0)</b> <ul style="list-style-type: none"> <li>None</li> </ul>	<b>Criticality Concerns (0)</b> <ul style="list-style-type: none"> <li>None</li> </ul>
<b>Fire Safety (0)</b> <ul style="list-style-type: none"> <li>None</li> </ul>	<b>Conduct of Operations (0)</b> <ul style="list-style-type: none"> <li>None</li> </ul>

## **Progress on Safety Management Initiatives**

- BNL is using its Safety Improvement Team and Director's Safety Committee to develop a path forward plan that will address proposed improvements identified in the DuPont Safety Resources Benchmark Assessment. The BAO and BNL are working closely to assure that the path forward is in concert with the FY04 performance measure designed to raise the BNL safety performance level to "Excellent".
- As part of the FY03 contract performance measures, Brookhaven Science Associates (BSA), conducted an independent third party evaluation of the Management System Assessment Program in September 2003. The evaluation team found that while there has been progress in the development of the self-assessment process, BNL has yet to reach the required level of maturity whereby results will consistently lead to the continuous improvement desired by the laboratory.
- The Fourth BSA Corporate Oversight Review was conducted in September 2003. The review evaluated performance in five areas: corrective actions from the Third Corporate Oversight Review, performance assessment process (with a particular emphasis on understanding differences between laboratory self-evaluation ratings and DOE ratings), effectiveness of Internal Audit and Independent Oversight Offices, Diversity, and Fraud, Waste, and Abuse. These areas were selected after careful consideration of institutional performance, issues that may impact the continued viability and strategic growth of BNL, and consideration of other significant events or conditions impacting the DOE complex in general.
- Approximately 7,000 cubic yards of soil from the 1997 excavation of the Animal Pits and Chemical Holes area were shipped for disposal. With the assistance of an Accelerated Site Technology Deployment (ASTD) project, an on-site field laboratory was established for real time sampling, resulting in the reclassification of waste (from mixed low-level waste to radioactive low-level waste), and resulted in a cost savings of nearly \$1,000,000 in waste treatment and disposal costs.

## QUARTERLY REPORT

### July - September 2003

### Fermi National Accelerator Laboratory

#### Safety-Related Mission Areas of Interest

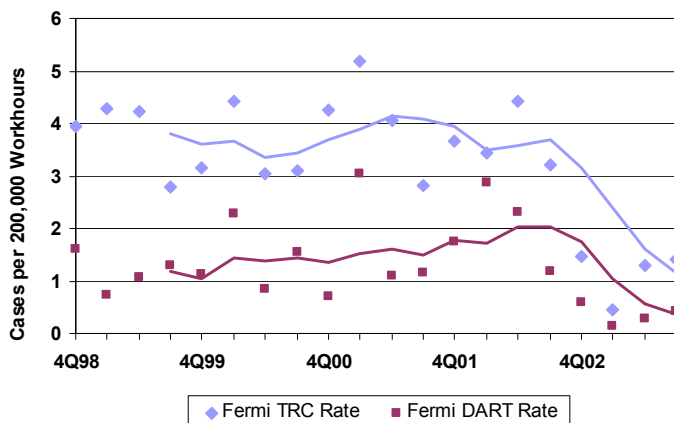
Fermi National Accelerator Laboratory advances the understanding of the fundamental nature of matter and energy by providing leadership and resources for qualified researchers to conduct basic research at the frontiers of high-energy physics and related disciplines.

1. NuMI Construction Safety Success: To encourage subcontractor workplace safety, Fermilab's contract with Ragnar Benson, Inc. for the NuMI project provides for safety-related financial incentives. In July 2003, construction workers collected a \$25,000 check from Fermilab. The award was the workers' share of a \$50,000 safety incentive payment for achieving project construction milestones on schedule and prevention of OSHA-recordable injuries for 166 days.
2. Accelerator Shutdown: A ten-week shutdown of the entire accelerator complex began in mid-September 2003 to perform necessary repairs and install new equipment needed to meet future research objectives. This effort involves hands-on work with activated accelerator components in tight spaces and addition and realignment of numerous accelerator components. The work is being done with every attention to effective planning to prevent workplace injury and minimize radiation exposure. Work done during this shutdown will improve the safety of future operation and maintenance activities, including reducing radiation exposures.
3. ORPS Trends: Work planning and attention to safety have contributed to fewer ORPS events (i.e., no events in the 3<sup>rd</sup> and 2<sup>nd</sup> quarters of CY 2003).

#### Areas of Management Attention

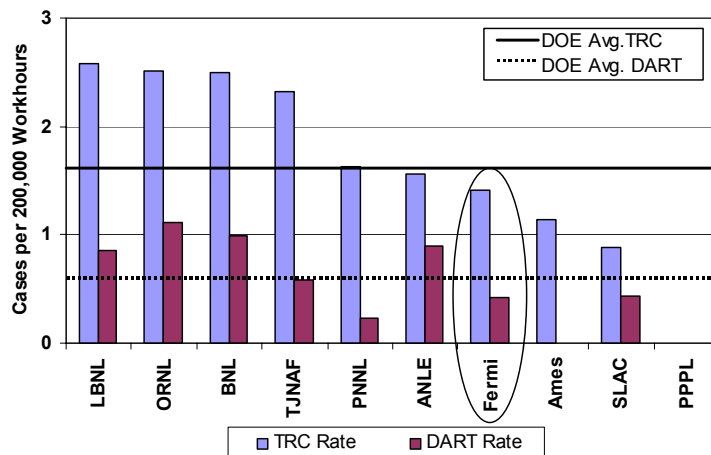
1. Laboratory Director's Safety Panel: Work continues in addressing the recommendations of the Laboratory Director's Safety Panel that looked at subcontractor safe work practices at Fermilab. Further clarification of roles and responsibilities for line management and safety personnel is being documented in various procedures prior to training of employees. Most of this effort is dovetailed with the Fermilab's implementation of DOE Manual 413.3-1. Effective oversight of subcontractor workers and activities is a continuing challenge. Temporary workers can be on site for relatively short periods.
2. Fermilab Continued to Experience Very Few Injuries: During this quarter, Fermilab employees experienced eight recordable injuries, three of which resulted in restricted work activities. There were only two subcontractor injuries, neither of which resulted in lost or restricted time. Fermilab received a Perfect Record Award from the National Safety Council for twelve consecutive months without an injury resulting in days away from work (August 15, 2002 through August 14, 2003).

TRC and DART: 4-Period Moving Average\*



\*Data as of November 21, 2003; composite of all contractors and subcontractors.

TRC and DART: Ranking for SC Sites\*



\*Ranked by TRC for 2003-3rd Quarter

<b>Key Performance Areas</b> <b>(There were zero occurrences at Fermi for the 3rd Quarter)</b>	
<b>Near Miss (0)</b> • None	<b>Criticality Concerns (0)</b> • None
<b>Radiological Concerns (0)</b> • None	<b>AB Infractions (0)/Potential Infractions (0)</b> • None
<b>Shipping QA (0)</b> • None	<b>Safeguards and Security (0)</b> • None
<b>Fire Safety (0)</b> • None	<b>Environmental Releases/Compliance (0)</b> • Not available
<b>Occupational Safety/Industrial Hygiene (0)</b> • None	<b>Electrical Safety (0)</b> • None
<b>Conduct of Operations (0)</b> • None	<b>Industrial Operations (0)</b> • None
<b>Equipment Degradation/Failure(0)</b> • None	<b>S/CI (0)</b> • None
<b>Vehicle</b> • None	<b>Other (0)</b> • None

### Progress on Safety Management Initiatives

- Alternative Fuel Fleet:** With more than 25 percent of the vehicles in its fleet now equipped to run on alternative fuels, Fermilab is well on the way to reaching the Federally-mandated goal of a 20 percent reduction in fossil fuel use by FY 2005 (see Executive Order 13149). Fermilab now has 63 alternative fuel vehicles: 20 vehicles running on E85, a mixture of gasoline and alcohol containing up to 85 percent ethanol; 40 vehicles capable of running on either compressed natural gas or conventional gasoline; and three vehicles running exclusively on electricity. The laboratory also has reduced its total fleet by 18 vehicles in the last two years and recently installed a 6,000-gallon E85 underground storage tank and fuel delivery system.
- OSHA Inspection:** As part of the external regulation initiative, a two-person OSHA team visited Fermilab in September. Fermilab is not scheduled for an OSHA inspection until March 2004, but wanted to take advantage of the current shutdown to provide access to the accelerator tunnels. Blocked electrical panels were the most frequently cited problem among the few that were noted. Inspectors observed that most of these situations were temporary due to the large amount of materials and equipment being staged for use in the tunnels during the shutdown. No significant problems were observed and the inspectors commented very positively on Fermilab's radiation protection program and the radioactive waste storage facility.

## QUARTERLY REPORT

### *July - September 2003*

## Lawrence Berkeley National Laboratory (LBNL)

### Safety-Related Mission Areas of Interest

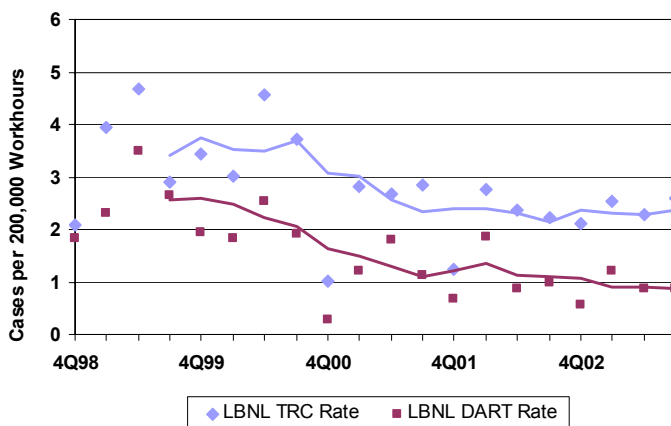
The Ernest Orlando Lawrence Berkeley National Laboratory (Berkeley Lab) performs research in advanced materials, life sciences, computing sciences, energy efficiency, detectors, and accelerators to serve America's needs in technology and the environment. As stewards of a national laboratory, the Lab is committed to fulfilling its scientific mission by performing all work safely, in a manner that strives for the highest degree of protection for employees, participating guests, visitors, the public, and the environment.

1. Berkeley Lab has completed 5 years without a violation under its Wastewater Discharge Permit from the East Bay Municipal Utility District (EBMUD). The latest permit from EBMUD, which had been an annual permit up till now, was granted for a period of 4 years. This represents a considerable savings of time, resources, and permit fees. Frequency and parameters of required self-monitoring were also decreased, which will reduce monitoring and analytical costs.

### Areas for Management Attention

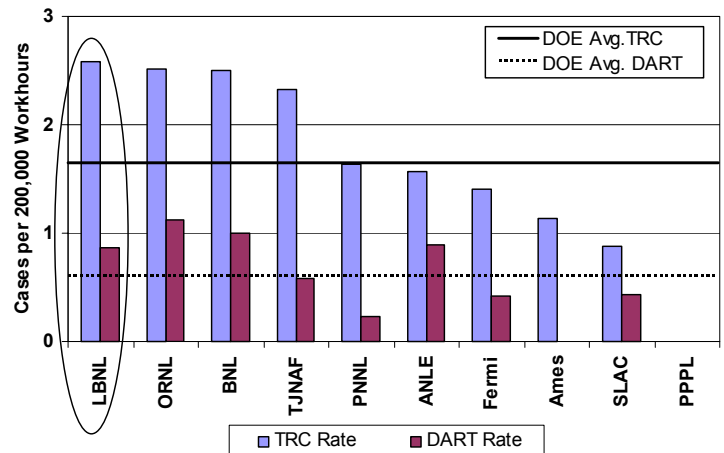
1. On September 2, 2003 LBNL, University of California Berkeley campus, and BSO staffs participated in a teleconference call with Pat Dehmer (DOE/BES) to review the report of the Laser Program Review Panel with Mr. Tim Hitchcock, chairman of the panel, reporting on the panel's findings. The panel of industry experts was charged to investigate a laser safety accident that occurred in March 2003 at a laboratory on the Berkeley campus. The incident was reported in the first quarter of the SC Quarterly Reports and is also an ORPS report (OAK-LBL-MSD-2003-0001). The teleconference call finalizes the corrective actions intended to not only prevent recurrence but also to improve the laser safety programs for both the UCB campus and LBNL. Key corrective actions include requiring additional engineering and administrative controls, training and reviews for laser usage and strengthening implementation of ISM for projects and students working on campus under LBNL funding.

TRC and DART: 4-Period Moving Average\*



\*Data as of November 21, 2003; composite of all contractors and subcontractors.

TRC and DART: Ranking for SC Sites\*



\*Ranked by TRC for 2003-3rd Quarter

## Key Performance Areas

(There were 3 occurrence reported at LBNL for the 3rd Quarter)

<b>Near Misses (0)</b> <ul style="list-style-type: none"> <li>• none</li> </ul>	<b>Criticality Infractions (0)</b> <ul style="list-style-type: none"> <li>• none</li> </ul>
<b>Radiological Concerns (1)</b> <ul style="list-style-type: none"> <li>• Three staff workers at the Lab's Hazardous Waste Handling Facility (HWHF) detected small amounts of alpha contamination (&lt;10 cpm) on their shoes while monitoring themselves on the hand/shoe counter. Follow-up surveys identified alpha contamination on the floor in the posted controlled area of the HWHF. Highest activity found was 25,000 dpm (5000 cpm/20% efficiency). It is believed that the contamination was caused by residual activity from a waste repackaging operation the previous day involving some Proactinium containers. All areas and personnel shoes were decontaminated. Additional controls and restrictions were implemented as a result of this incident.</li> </ul>	<b>AB Infractions (0)</b> <ul style="list-style-type: none"> <li>• none</li> </ul>
<b>Shipping QA (1)</b> <ul style="list-style-type: none"> <li>• Two Kr-85 sealed sources were transported in violation of DOT requirements when an LBNL researcher transported the sources from his UC Berkeley Campus lab to his lab at LBNL. The sources were not used and there was no exposure at the LBNL lab. After discovery of the sources, the sources were properly packaged and transported back to the UC Berkeley Campus.</li> </ul>	<b>Safeguards and Security (0)</b> <ul style="list-style-type: none"> <li>• none</li> </ul>
<b>Materials Handling (0)</b> <ul style="list-style-type: none"> <li>• none</li> </ul>	<b>Electrical Safety (1)</b> <ul style="list-style-type: none"> <li>• During excavation to install an underground monitoring device, subcontract worker cut through a 110 VAC line in a PVC conduit that was unexpectedly located 4 inches below the surface. The line was not active so there was no shock or injury to the worker performing the cut. Prior to the excavation, a ground penetration utility survey was performed that located the conduit. However, the 4-inch, rather than the normal 18-inch, depth was not expected by the workers. Changes in the surveying procedures and hold points in the excavation procedures were instituted as a result of this incident.</li> </ul>
<b>Occupational Safety/Industrial Hygiene (0)</b> <ul style="list-style-type: none"> <li>• none</li> </ul>	<b>Con Ops (0)</b> <ul style="list-style-type: none"> <li>• none</li> </ul>

**Key Performance Areas****(There were 3 occurrence reported at LBNL for the 3rd Quarter)**

<b>Equipment Failure/degradation (0)</b> <ul style="list-style-type: none"><li>• none</li></ul>	<b>Environmental Releases/Compliance (0)</b> <ul style="list-style-type: none"><li>• none</li></ul>
<b>Fire Safety (0)</b> <ul style="list-style-type: none"><li>• none</li></ul>	

**Progress on Safety Management Issues**

- External Regulation Initiative. LBNL continues to conduct its self-evaluation of its Radiation Protection and Occupational Safety and Health programs in anticipation of the pilot site inspections by representatives from the Nuclear Regulatory Commission (NRC) and Federal Occupational Safety and Health Administration (Fed/OSHA). The NRC inspection is scheduled for October 2003, while the OSHA inspection has a tentative date in late January 2004. For both inspections, topical areas have been identified so that the data and information for these topics are now being gathered to make available to the NRC and OSHA representatives. LBNL divisions are also being engaged as applicable to conduct their own self-assessment of work spaces.
- New LBNL ORPS Program. With DOE Order 231.1A, *Environment, Safety and Health Reporting*, receiving final DOE/HQ approval on August 17, 2003, LBNL declared its intent to migrate over to the new ORPS database and ORPS program requirements in late August. An action plan was developed to transition over to the new system in the next several months. LBNL plans to develop new procedures, a new ORPS website, and new training to complete the implementation of the new ORPS by the deadline of November 17, 2003.
- Self-Assessment Accreditation. Following the issuance of the DOE evaluation report of LBNL's Self-Assessment Program, the Lab developed a corrective action plan and began implementing many of the corrective actions to improve its Self-Assessment Program. During the past quarter, senior EH&S officials met with DOE/SC and DOE/EH managers in Washington D.C. to plan for the Lab's presentation before the DOE Self-Assessment Accreditation Board. Accreditation by the Board will be the final step for this initiative.
- Characterization of Legacy Material. The EH&S Technical Services Group completed the characterization of legacy material at the Heavy Element Radiation Laboratory (HERL) and identified disposition paths for the material. The main part of this project lasted two years and was funded at approximately \$500k total. It was a joint project between EH&S and Chemical Sciences and was a multi-disciplinary effort with significant effort from waste management, health physics, radiochemist, and industrial hygiene professionals. Over 1500 items were individually identified and characterized. These included a number of particularly difficult items such as unknown, research-generated pyrophorics with significant radiological content, contaminated glove-boxes, etc. The last stage of the project is final disposition, whereby the remaining items are sent for LLRW, MW, or TRU waste.

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## QUARTERLY REPORT

### July – September 2003

## Oak Ridge National Laboratory (ORNL)

### Safety-Related Mission Areas of Interest

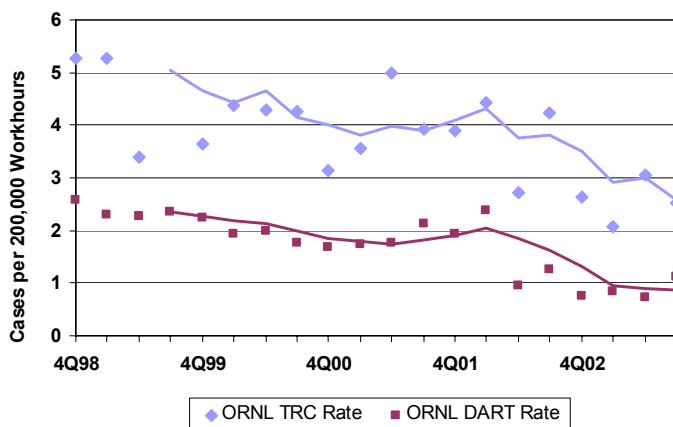
ORNL is a multi-program science, technology, and energy laboratory with distinctive capabilities in materials science and engineering, neutron science and technology, energy production and end-use technologies, mammalian genetics, environmental science, and scientific computing. UT-Battelle, LLC, as the managing and operating contractor for the DOE, is committed to systematically carrying out its missions in a manner that achieves excellence, cost-effectiveness, and competitiveness in R&D, while simultaneously protecting its workers, the public, and the environment.

1. ORNL (UT-Battelle, LLC) completed the fiscal year with no reportable releases to the environment, no significant findings by regulators during inspections, and no noncompliances under DOE's NPDES permit with the Tennessee Department of Environment and Conservation (TDEC). In FY03, a major inspection was performed jointly by TDEC and the Environmental Protection Agency (EPA).

### Areas for Management Attention

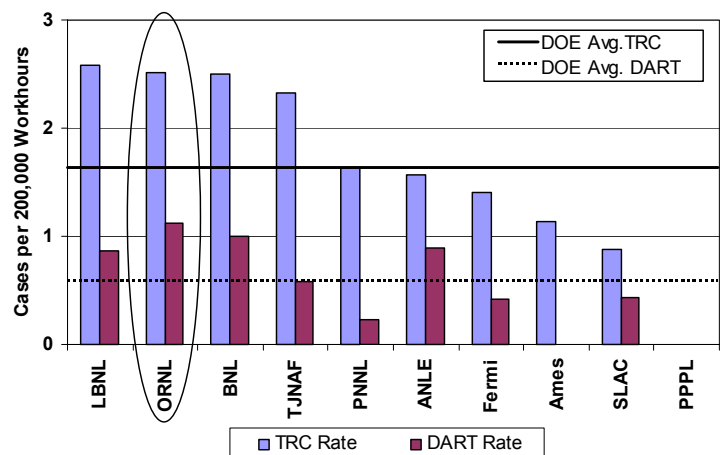
1. The potential impact from EM's accelerated closure contract on the transfer of responsibility for disposition of ORNL's Newly Generated Waste to SC continues to be a concern. The funding proposed by EM to accompany transfer of these activities is significantly lower than SC's estimate. In addition, SC is proposing a phased approach with solid waste streams transferred over the next few years and transfer of the Liquid and Gaseous Waste Facilities deferred until EM has completed their cleanup and associated need for these facilities. EM continues to push for a complete transfer of all in FY 2005.
2. The end of the fiscal year total recordable case rate decreased from 3.6 in FY 02 to 2.3 in the final quarter of FY 03. In the third quarter of the calendar year, ORNL reported 13 DART cases, of which approximately 50% were related to soft tissue injuries. This represents an 8% improvement in soft tissue injuries from the previous year.

TRC and DART: 4-Period Moving Average\*



\*Data as of November 21, 2003; composite of all contractors and subcontractors.

TRC and DART: Ranking for SC Sites\*



\*Ranked by TRC for 2003-3rd Quarter

## Key Performance Areas

(There were 27 occurrences this quarter,

12 of the 27 occurrences are associated with NE and 15 with SC.

\* Items noted with an “\*” were Group 10C, Potential Concerns/Issue, and were not reportable under any other criteria.)

<b>Near Misses (1)</b> <ul style="list-style-type: none"> <li>Construction subcontractor drills into live electrical cable embedded less than 2” into a concrete beam. Additional work controls were put into place. <i>CA: Current exclusion for use of permit when penetrations are less than 2” is being re-evaluated (no injuries, no damage)</i> (SC)</li> </ul>	<b>Environmental Releases/Compliance (0)</b> <ul style="list-style-type: none"> <li>None</li> </ul>
<b>Criticality Concerns (0)</b> <ul style="list-style-type: none"> <li>None</li> </ul>	<b>AB Infractions (4)</b> <ul style="list-style-type: none"> <li>Sealed sources exceeding Hazard Category 3 Threshold were identified without inventory exclusion documentation (SC)</li> <li>Evaluation of scaffolding left in HFIR heat exchanger cell results in positive USQ (NE)</li> <li>Evaluation of rupture disk and pressure transient results in positive USQ (NE)</li> <li>TSR violation: Entering Pool Work Submode with inoperable monitrons (NE)</li> </ul>
<b>Radiological Concerns (12)</b> <ul style="list-style-type: none"> <li>5 occurrences of spread of contamination (1 NE, 4 SC)</li> <li>7 personnel contaminations (skin, clothing) (2 NE, 5 SC)</li> </ul>	<b>Shipping QA (0)</b> <ul style="list-style-type: none"> <li>None</li> </ul>
<b>Fire Safety (0)</b> <ul style="list-style-type: none"> <li>None</li> </ul>	<b>Equipment Degradation (5)</b> <ul style="list-style-type: none"> <li>Coolant hose from HFIR diesel coolant system block heater failed (NE*)</li> <li>Failure of HFIR No. 2 Emergency Diesel Generator to start during surveillance testing (NE)</li> <li>Excessive vibration of HFIR Special Building Hot Exhaust Fan No. 3 (NE*)</li> <li>HFIR diesel fuel tank level switch malfunction resulted in failure to fill tank to required level (NE*)</li> <li>HFIR room G-12 Fire Door found closed (NE)</li> </ul>
<b>Occupational Safety/Industrial Hygiene (1)</b> <ul style="list-style-type: none"> <li>Mild personnel chemical exposure (acetic acid) (NE*)</li> </ul>	
<b>Electrical Safety (0)</b> <ul style="list-style-type: none"> <li>None</li> </ul>	
<b>Material Handling (0)</b> <ul style="list-style-type: none"> <li>None</li> </ul>	
<b>Conduct of Operations (1)</b> <ul style="list-style-type: none"> <li>Removal of asbestos-containing material from a hood without following all required procedures for asbestos work (SC)</li> </ul>	
<b>Other (3)</b> <ul style="list-style-type: none"> <li>Suspect/counterfeit bolt found in out-of-service crane (SC)</li> <li>Two suspect/counterfeit bolts found in the post mounting of a monorail; three additional bolts of the same markings were found on the railing structure (SC)</li> <li>A private construction contractor’s (KDA) storm water permit was violated when uncured latex roofing sealant washed into White Oak Creek during a rain storm. KDA is a third-party contractor. This was not a noncompliance for DOE or UT-Battelle. (SC)</li> </ul>	

## **Progress on Safety Management Initiatives**

1. Following are a few examples of activities conducted in the third quarter designed to continue to reduce TRC rate. These involved the continued execution of ORNL on-going safety initiatives such as:
  - Continued management emphasis on safety accountability
  - Completion of SBMS rollout for more effective communication of requirements and expectations through a systems approach
  - Facility modernization improvements to reduce physical hazards and hazardous materials footprint reduction.
  - Targeted high injury groups (ex. – Facilities and Operations Directorate)
    - \* Continued first year using Dupont Safety Training Observation Program (STOP) for management
    - \* Completed first year of the safety incentive plan for hourly employees which concentrated on group rewards for reduction of safety issues that result in Lost Workday Away cases
    - \* Continued focus group discussions with high risk work groups including laborers and janitors to address soft tissue injuries
2. On September 30, 2003, ORNL issued the management summary for the Integrated Safety Management Maturity Evaluation Assessment conducted at the Laboratory during the early part of 2003. The report identifies four cross-cutting issues warranting action by Lab management. These include: limitations of work planning and control, vulnerabilities within the assessment and feedback core function, lack of consistent operational discipline, and weaknesses in the system that promotes reporting of unsafe conditions. Development of corrective/preventative actions that address the four issues is scheduled to be completed by December 30, 2003.

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## QUARTERLY REPORT

### July - September 2003

## Pacific Northwest National Laboratory (PNNL)

### Safety-Related Mission Areas of Interest

PNNL conducts high quality, leading edge, scientific research in the areas of fundamental science, environmental technology, energy science and technology, and national security. PNNL work is conducted in both government and private facilities, and includes a major user facility, the Environmental Molecular Sciences Laboratory.

#### 1. Corporate Focused Safety Management Evaluation:

PNNL conducted a corporate review of the PNNL Integrated Safety Management System (ISMS) in August. The results identified a number of continuous improvement opportunities, but no system-level failures/findings that would threaten PNNL's ability to accomplish its mission. The review team noted that PNNL has implemented several systems that have strengthened the overall safety capabilities at PNNL, e.g., updated Electronic Preparation and Risk (EPR) system, and the Integrated Operations System (IOPS).

The DOE Office of Environment, Safety and Health Evaluations (OA-50) will be on site in November to conduct a review of PNNL's Focused Safety Management Evaluation system.

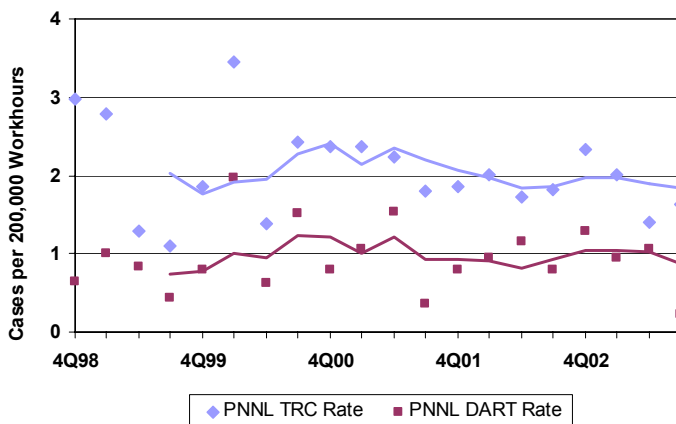
2. **OSHA Inspection of PNNL:** OSHA conducted a comprehensive safety and health inspection of PNNL government-owned and -leased facilities to determine the level of compliance with applicable OSHA standards on September 18-26. There were a number of items identified for correction. PNNL is in the process of providing cost estimates for the recommended corrective actions as part of the process for determining whether to transition to external regulation under OSHA. There were no impacts to mission objectives resulting from the OSHA audit.

### Areas for Management Attention

The following items are updates on actions that have been taken in response to previous events that required management attention:

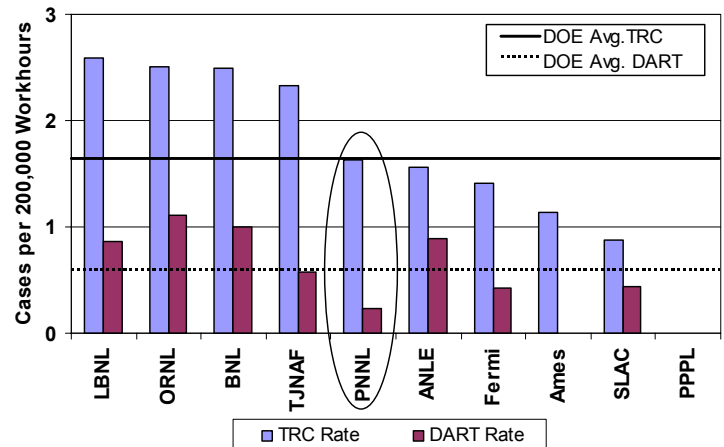
1. **High Magnetic Field Safety:** As a result of a previous incident where a staff member received an injury to his finger, PNNL conducted a review of its magnetic field safety program. The team (an external expert and internal subject matter experts) found the high magnetic field safety program to be in excellent shape. A few recommendations were provided by the team, which are being implemented.
2. **Analysis of Laboratory Events:** PNNL had its Independent Oversight (IO) group conduct a review of events that have occurred over the last 12 months to determine if any systemic issues were developing. IO concluded that in several of the events, the Laboratory staff and managers did not recognize hazards or risks due to experiential bias (do not recognize a hazard as such, due to the unchanging presence of the hazard). PNNL senior management has formally responded to the Lab Director, with planned improvement actions. Actions are being tracked in the Assessment Tracking System.

TRC and DART: 4-Period Moving Average\*



\*Data as of November 21, 2003; composite of all contractors and subcontractors.

TRC and DART: Ranking for SC Sites\*



\*Ranked by TRC for 2003-3rd Quarter

<b>Key Performance Areas</b> (There were 2 occurrences this quarter)	
<b>Near Misses (0)</b> <ul style="list-style-type: none"> <li>None</li> </ul>	<b>Shipping QA (0)</b> <ul style="list-style-type: none"> <li>None</li> </ul>
<b>Criticality Concerns (0)</b> <ul style="list-style-type: none"> <li>None</li> </ul>	<b>AB Infractions (0)/Potential Infractions (0)</b> <ul style="list-style-type: none"> <li>None</li> </ul>
<b>Radiological Concerns (2)</b> <ul style="list-style-type: none"> <li>A staff member was contaminated on one shoe during bulking of old experiment samples (20ml vials). The samples were stored from 1996 experiments. Extended exposure of the sample vial, from sample material radioactivity, caused degradation of the vial causing it to break open when attempting to open/tighten the cap. <i>CA: develop &amp; implement a plan to manage legacy containers; prepare lessons learned on radiological sample storage time, and perform broader assessment to determine extent of issue.</i></li> <li>A subcontracted construction worker was contaminated on his index finger while performing clean-up activities of a lab in the Radiochemical Processing Lab. <i>CA: The workers finger was decontaminated. Final CA's are being developed.</i></li> </ul>	<b>Fire Safety (0)</b> <ul style="list-style-type: none"> <li>None</li> </ul>
	<b>Environmental Releases/Compliance (0)</b> <ul style="list-style-type: none"> <li>None</li> </ul>
<b>Equipment Degradation (0)</b> <ul style="list-style-type: none"> <li>None</li> </ul>	<b>Safeguards and Security (0)</b> <ul style="list-style-type: none"> <li>None</li> </ul>
<b>Material Handling (0)</b> <ul style="list-style-type: none"> <li>None</li> </ul>	<b>Electrical Safety (0)</b> <ul style="list-style-type: none"> <li>None</li> </ul>
<b>Conduct of Operations (0)</b> <ul style="list-style-type: none"> <li>None</li> </ul>	<b>Other (0)</b> <ul style="list-style-type: none"> <li>None</li> </ul>

### Progress on Safety Management Initiatives:

The Voluntary Protection Program (VPP) Steering Committee reviewed results of an independent study of PNNL accidents and injuries over the past 8 years. The majority of injuries occurred during unplanned work, and consisted of strains, sprains and other soft tissue trauma. The Steering Committee is developing recommendations for management consideration, including potentially bringing in an expert consultant to evaluate issues and solutions in this area.

## QUARTERLY REPORT

### *July – September 2003*

## Princeton Plasma Physics Laboratory (PPPL)

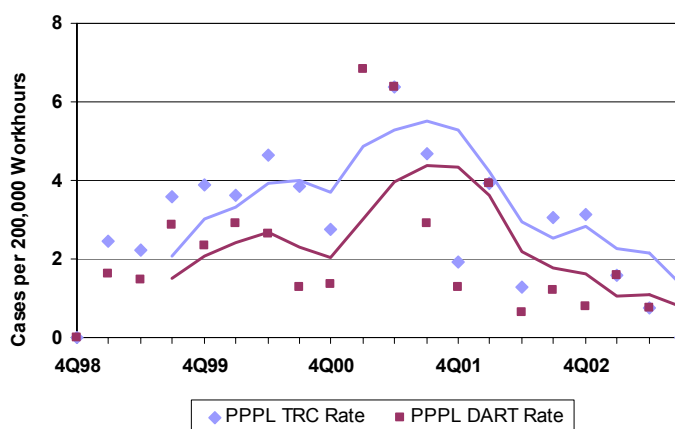
### Safety-Related Mission Areas of Interest

PPPL is a Collaborative National Center for plasma and fusion science. Its primary mission is to develop the scientific understanding and the key innovations, which will lead to an attractive fusion energy source. Associated missions include conducting world-class research along the broad frontier of plasma science and technology, and providing the highest quality of scientific education.

### Areas for Management Attention

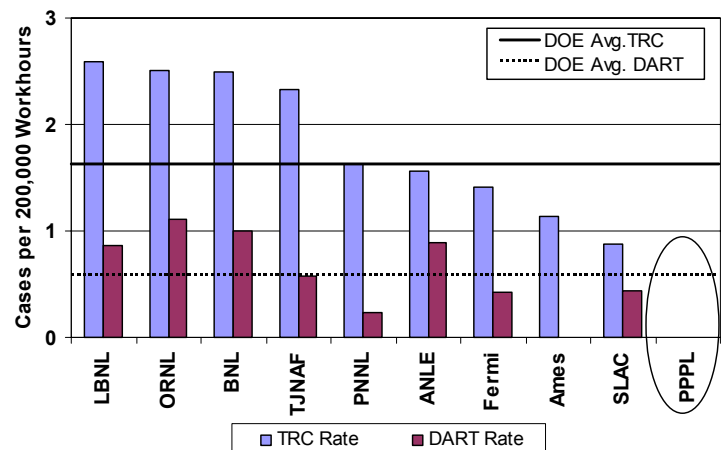
1. PPPL experienced no recordable occupational injury or illness cases in the third quarter of CY 2003. The Total Recordable Injury Case rate (TRC) for CY 2003 is down to 0.76. This is among PPPL's historically best TRC rates. PPPL has shown consistent long-term improvement in the TRC rate over the past 3 years -- down from 5.24 in 2001 and 2.83 in 2002 to the current 0.76.
2. The PPPL Days Away, Restricted or Transferred Case rate (DART) for CY 2003 was 0.76 through September. This rate is also among PPPL's historical best. This rate has been reduced from 4.45 in 2001 and 1.66 in 2002 – a significant and consistent long-term improvement.

TRC and DART: 4-Period Moving Average\*



\*Data as of November 21, 2003; composite of all contractors and subcontractors.

TRC and DART: Ranking for SC Sites\*



\*Ranked by TRC for 2003-3rd Quarter

<b>Key Performance Areas</b> (There were 2 occurrences at PPPL for the 3rd quarter)	
<b>Near Misses (0)</b> <ul style="list-style-type: none"> <li>None</li> </ul>	<b>Radiological Concerns (0)</b> <ul style="list-style-type: none"> <li>None</li> </ul>
<b>Criticality Concerns (0)</b> <ul style="list-style-type: none"> <li>None</li> </ul>	<b>Shipping QA (0)</b> <ul style="list-style-type: none"> <li>None</li> </ul>
<b>Safeguards and Security</b> <ul style="list-style-type: none"> <li>None</li> </ul>	<b>AB Infractions (0)</b> <ul style="list-style-type: none"> <li>None</li> </ul>
<b>Environmental Releases/Compliance (2)</b> <ul style="list-style-type: none"> <li>On 9/5/03, PPPL received a Notice of Violation from the New Jersey Department of Environmental Protection (NJDEP) for being out of compliance with its NJPDES permit for the following: (1) exceeded permitted limit (0.016 mg/l) for Chlorine Produced Oxidants (CPO) during the period of August 2002 (0.17 mg/l reported); and (2) exceeded permitted limit for Chemical Oxygen Demand (50 mg/l) during the period June 2003 (79 mg/l reported). <i>CA: A chlorine controller has been installed in the D-Site Cooling Tower to meter a set amount of chlorine (based on oxidation-reduction potential, ORP) into the cooling tower water. A total residual chlorine meter was also installed to measure the level of chlorine in the tower in order to maintain compliance at the discharge.</i></li> </ul> <p>The COD exceedance was caused by a buildup of sediment on the detention basin liner, which had not been cleaned since November 1999. <i>CA: The liner was cleaned in August 2003. In the future, PPPL will clean the basin more frequently and inspect the levels of sediment more closely to prevent the buildup of organic sediments and recurrence of the conditions leading to the elevated COD levels.</i></p> <ul style="list-style-type: none"> <li>On 9/23/03, an estimated 8 ounces of hydraulic fluid from a subcontractor's backhoe was released onto a grassed area that was covered with water puddles. The backhoe hydraulic line broke during the demolition of a concrete pit at the C-site cooling tower. Hydraulic fluid was released into the concrete pit as well. As it was raining at the time of the release, no soil was impacted, and no storm drains are located in the vicinity of the release. Absorbent pads were placed on the hydraulic fluid that was on the puddles and in the pit. All the used spill cleanup materials were placed in 3 55-gal. drums that will be shipped offsite.</li> </ul>	<b>Fire Safety (0)</b> <ul style="list-style-type: none"> <li>None</li> </ul>
	<b>Conduct of Operations (0)</b> <ul style="list-style-type: none"> <li>None</li> </ul>
	<b>Occupational Safety/Industrial Hygiene (0)</b> <ul style="list-style-type: none"> <li>None</li> </ul>
	<b>Materials Handling (0)</b> <ul style="list-style-type: none"> <li>None</li> </ul>
<b>Other (0)</b> <ul style="list-style-type: none"> <li>None</li> </ul>	<b>Equipment Degradation (0)</b> <ul style="list-style-type: none"> <li>None</li> </ul>
<b>Electrical Safety (0)</b> <ul style="list-style-type: none"> <li>None</li> </ul>	



### **Progress on Safety Management Initiatives**

- Preparation for possible External Regulation continued during the third quarter of CY03. The Nuclear Regulatory Commission (NRC) and the Occupational Safety and Health Administration (OSHA) conducted on-site inspections at PPPL in July and August, respectively. Much valuable information was gleaned from the NRC and OSHA professionals who visited.
- PPPL continued previous actions related to reducing TRC and DART rates. These actions include bimonthly Management Safety Walkthroughs, focused OSHA walkthroughs of areas by safety professionals, monthly hardcopy ES&H newsletters to all staff, monthly emails to all staff on injury/illness cases (or the lack of them), publication of lessons learned reports on events at PPPL and elsewhere via email and a PPPL web-site, and maintenance of a web-based ES&H "Drop Box" for employees to report ES&H issues anonymously.

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## QUARTERLY REPORT

### July – September 2003

### Stanford Linear Accelerator Center (SLAC)

#### Safety-Related Mission Areas of Interest

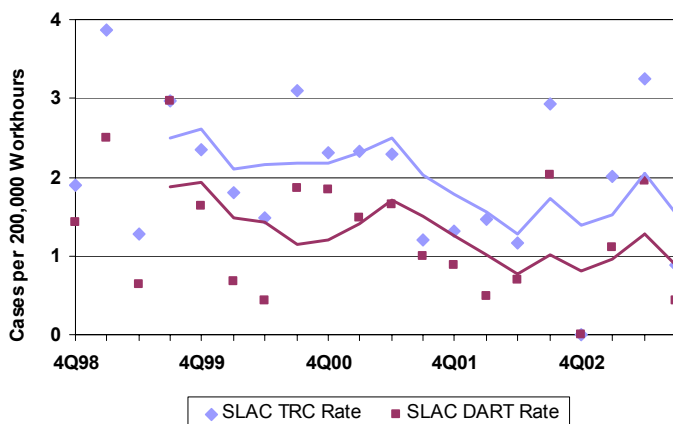
SLAC's mission is experimental and theoretical research in elementary particle physics using electron beams, as well as a broad program of research in atomic and solid state physics, chemistry, biology, environmental science, and medicine using synchrotron radiation.

- On July 9, 2003, a modulator fire occurred at the Next Linear Collider Test Accelerator (NLCTA). The fire at the NLCTA Station 1 klystron high voltage modulator was caused by an electrical failure inside the pulse forming network cabinet. The equipment inside of the cabinet and some support equipment and cables located above the modulator unit were destroyed and approximately 100 gallons of displaced oil spilled onto the floor as a result of the ruptured water hoses. No releases to the environment occurred as a result of the fire or subsequent cleanup activities. The damage to the equipment was limited to approximately \$30,000. The impact on the NLC program was small and limited to a reduction in the rate at which the Laboratory tests high gradient accelerator structures.
- On August 20, 2003, a transformer failed in variable Voltage Substation 11 at Sector 21, causing a power loss to 16 klystrons in the linac and an interruption of the scheduled accelerator program. The on-site fire department at SLAC responded and extinguished the fire. Approximately seven hours later, accelerator operations resumed at reduced beam energy. On August 23, 2003, a replacement transformer was installed and full operation was restored. The scheduled accelerator program was disrupted for a total of approximately 76 hours before full beam energy was restored. During this time, electron beam was delivered to the E-158 experiment at reduced energy for calibration and detector studies. In addition, approximately, 16 hours was used to carry out deferred maintenance activities.

#### Areas for Management Attention

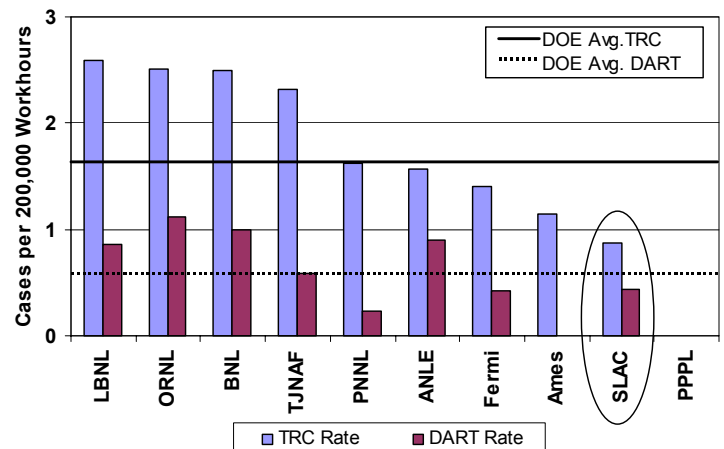
- The SSO received approval of the Corrective Action Plan (CAP) from the Office of Science on June 24, 2003 and modified the contract on May 20, 2003 to incorporate corrective actions resulting from the Type B accident investigation. The SSO completed and documented validation of the first series of CAP milestones on August 11, 2003. SLAC has established a working group that will develop the goals and criteria needed to define effective performance evaluation process that promotes line management accountability from top to bottom. SLAC has also established a hazardous analysis working group that is chartered to enhance the process for analysis of hazards and controls in routine and non-routine work activities. To date, SLAC has met all applicable milestones associated with the CAP. The SSO will continue to validate the Laboratory's completion of all upcoming milestones.
- The July 2000 DOE moratorium on the recycling of scrap metals from radiological areas and the delays in finalization of the metals recycling Programmatic Environmental Impact Statement continues to impact the ability of the site to manage the accumulation of scrap metals. The SSO has been working with the Laboratory to identify and establish additional locations around the site to store scrap metals as capacity in existing locations is used up. This has resulted in additional materials management costs to ensure that the material is being secured properly and is stored in a manner that doesn't pose a risk to the environment.

TRC and DART: 4-Period Moving Average\*



\*Data as of November 21, 2003; composite of all contractors and subcontractors.

TRC and DART: Ranking for SC Sites\*



\*Ranked by TRC for 2003-3rd Quarter

<b>Key Performance Areas</b> (There were 2 occurrences at SLAC for the 3rd quarter)	
<b>Near Misses (0)</b> <ul style="list-style-type: none"> <li>None</li> </ul>	<b>Radiological Concerns (0)</b> <ul style="list-style-type: none"> <li>None</li> </ul>
<b>Criticality Concerns (0)</b> <ul style="list-style-type: none"> <li>None</li> </ul>	<b>Shipping QA (0)</b> <ul style="list-style-type: none"> <li>None</li> </ul>
<b>Safeguards and Security</b> <ul style="list-style-type: none"> <li>None</li> </ul>	<b>AB Infractions (0)</b> <ul style="list-style-type: none"> <li>None</li> </ul>
<b>Environmental Releases/Compliance (0)</b> <ul style="list-style-type: none"> <li>None</li> </ul>	<b>Fire Safety (2)</b> <ul style="list-style-type: none"> <li>On July 9, 2003, a modulator fire occurred at the Next Linear Collider Test Accelerator (NLCTA). The fire at the NLCTA Station 1 klystron high voltage modulator was caused by an electrical failure inside the pulse forming network cabinet. The equipment inside of the cabinet and some support equipment and cables located above the modulator unit were destroyed and approximately 100 gallons of displaced oil spilled onto the floor as a result of the ruptured water hoses. No releases to the environment occurred as a result of the fire or subsequent cleanup activities. The damage to the equipment was limited to approximately \$30,000. The impact on the NLC program was small and limited to a reduction in the rate at which the Laboratory tests high gradient accelerator structures. Corrective actions involving improvements to the fire detection system, control of modulator air flow and fire suppression system have been implemented by SLAC. Future designs will include a higher level of attention to fire prevention.</li> <li>On August 20, 2003, a transformer failed in variable Voltage Substation 11 at Sector 21, causing a power loss to 16 klystrons in the linac and an interruption of the scheduled accelerator program. The on-site fire department at SLAC responded and extinguished the fire. Approximately seven hours later, accelerator operations resumed at reduced beam energy. On August 23, 2003, a replacement transformer was installed and full operation was restored. The transformer that failed had been installed specifically to test whether or not the long-term performance of a dry-type, fixed ratio transformer would be satisfactory in the SLAC linac application. The incident demonstrated that this dry-type transformer lacked the robustness for long-term reliability in this application. The scheduled accelerator program was disrupted for a total of approximately 76 hours before full beam energy was restored. During this time, electron beam was delivered to the E-158 experiment at reduced energy for calibration and detector studies. In addition, approximately, 16 hours was used to carry out deferred maintenance activities.</li> </ul>
	<b>Conduct of Operations (0)</b> <ul style="list-style-type: none"> <li>None</li> </ul>

<b>Key Performance Areas</b> (There were 2 occurrences at SLAC for the 3rd quarter)	
	<b>Occupational Safety/Industrial Hygiene (0)</b> <ul style="list-style-type: none"> <li>None</li> </ul>
	<b>Materials Handling (0)</b> <ul style="list-style-type: none"> <li>None</li> </ul>
<b>Other (0)</b> <ul style="list-style-type: none"> <li>None</li> </ul>	<b>Equipment Degradation (0)</b> <ul style="list-style-type: none"> <li>None</li> </ul>
<b>Electrical Safety (0)</b> <ul style="list-style-type: none"> <li>None</li> </ul>	

### Progress on Safety Management Initiatives

- A SLAC self-assessment was conducted during the week of August 18, 2003. The purpose of the assessment was to identify opportunities for laboratory improvement using the OSHA Voluntary Protection Program (VPP) and DOE Integrated Safety Management System (ISMS) as standards. The VPP/ISMS assessment included programmatic assessment, facility walkthroughs and report writing. The report concludes that the Laboratory has made good progress in attaining its safety and health objectives and has invested significant resources in this area. The report also identified improvement opportunities in the deployment of safety attitudes and implementation throughout the organization to further enhance these programs.
- On September 22, 2003, the SLAC Director, senior managers and members of his staff held the SLAC Annual Safety and Security Briefing. All SLAC employees were required to attend the briefing that included presentations on site safety and security, property protection, computer security, emergency preparedness and response and counter-intelligence.
- The SSO and SLAC are in the process of developing and validating cost estimates for the list of items identified by the Nuclear Regulatory Commission (NRC) during the October 15-17, 2003 audit at SLAC. SLAC also completed a \$1.1M, multi-year project to improve stormwater connections at the site.

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## QUARTERLY REPORT

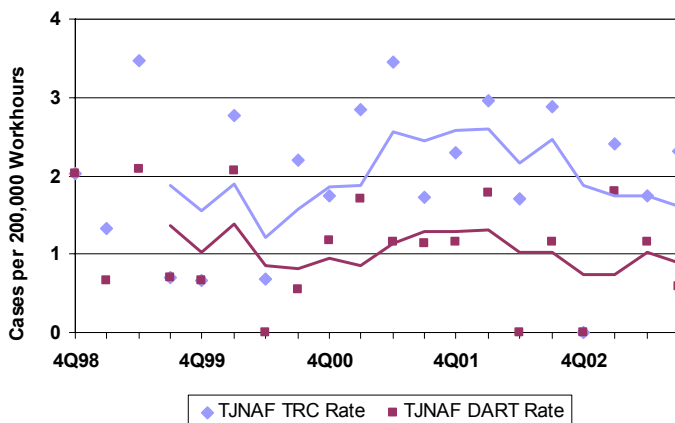
*July – September 2003***Thomas Jefferson National Accelerator Facility (TJNAF)****Safety-Related Mission Areas of Interest**

TJNAF's main mission is basic research into the quark structure of matter. TJNAF is also active in the development of high power free electron lasers. Core competencies include superconducting radiofrequency technology, 2K cryogenics, and high power free electron lasers.

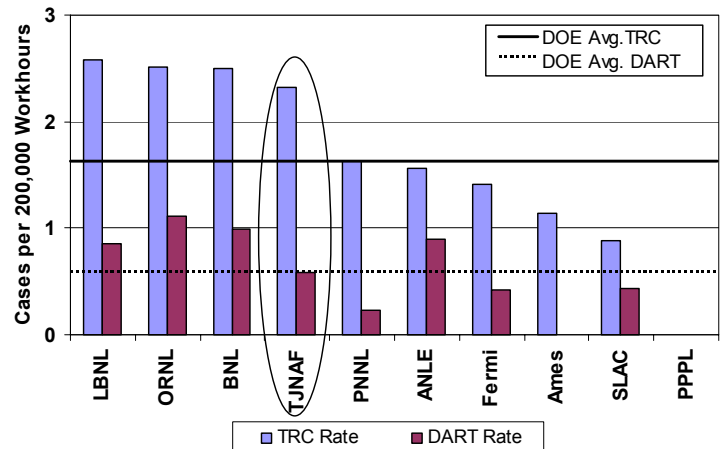
1. The Laboratory has identified work planning and hazard identification as "weak links" in their ISM program. Further analysis also identified electrical safety and materials handling as focus areas that deserve special attention. The Laboratory Director has emphasized the importance of identifying hazards in all work planning activities to his management team who have taken the message to the worker level. In addition, the Lab has identified milestones for activities to be accomplished to address the two focus areas to improve performance.
2. Jefferson Lab weathered Hurricane Isabel without major structural damage. However, the Hurricane will delay the Nuclear Physics research program by about two months. This is due to the prolonged (4 days) power outage that resulted in major helium loss and subsequent warm-up of the accelerator. An analysis of back up power options is underway and should be complete by December 31, 2003.

**Areas for Management Attention**

1. The Laboratory has experienced five accidents this quarter. Four were personal injury incidents and one was a crane incident that caused minor property damage. The Laboratory has analyzed accident records over a six year period and has identified two special focus areas that need performance improvements, electrical and material handling. The Laboratory is investigating what additional measures are needed to address behavioral and other issues.

**TRC and DART: 4-Period Moving Average\***

\*Data as of November 21, 2003; composite of all contractors and subcontractors.

**TRC and DART: Ranking for SC Sites\***

\*Ranked by TRC for 2003-3rd Quarter

<b>Key Performance Areas</b> <b>(There was 1 occurrence at TJNAF for the 3rd Quarter)</b>	
<b>Near Misses (1)</b> <ul style="list-style-type: none"> <li>The inadvertent movement of overhead crane #1 on the north side of the Test Lab high bay area. The crane was positioned for a lift of a vacuum pump to an adjacent cold box. The crane control box for radio-controlled crane operation was hanging from the strap around the crane operator's neck. The crane began moving southward where the crane hook contacted and damaged several water pipes before the crane came to rest. <i>CA: Two new Test Lab crane control boxes with mechanical safeguards to reduce the likelihood that the crane can be operated inadvertently will be procured. Remote control operations of cranes to be performed by only qualified crane operators. Crane maintenance firm shall inspect the crane computer control box. Lab crane operator training will be revised to include clear instructions on steps to take for different modes of crane failure. CA: The two crane control boxes were purchased and in operation on October 7, 2003; employees have been qualified to operate crane; crane maintenance firm's electronics expert inspected the crane control box on July 24, 2003 and found no problems found; and, the Lab's crane operator training was revised and the in place on September 5, 2003.</i></li> </ul>	<b>ConOps (0)</b> <ul style="list-style-type: none"> <li>None</li> </ul>
<b>Radiological Concerns (0)</b> <ul style="list-style-type: none"> <li>None</li> </ul>	<b>AB Infractions (0)</b> <ul style="list-style-type: none"> <li>None</li> </ul>
<b>Shipping QA (0)</b> <ul style="list-style-type: none"> <li>None</li> </ul>	<b>Safeguards and Security (0)</b> <ul style="list-style-type: none"> <li>None</li> </ul>
<b>Fire Safety (0)</b> <ul style="list-style-type: none"> <li>None</li> </ul>	<b>Environmental Releases/Compliance (0)</b> <ul style="list-style-type: none"> <li>None</li> </ul>
<b>Criticality Infractions (0)</b> <ul style="list-style-type: none"> <li>None</li> </ul>	



## **Progress on Safety Management Initiatives**

- External Regulation Initiative. The Laboratory has continued to address the OSHA punch list items closing 30% of the items as of September 30, 2003 and an additional 20% have been closed to date. Closure dates are being set for the remaining items with the expectation that all items will be closed well before the end of FY04. Items are closed either when the hazard is mitigated or when a reasoned decision has been taken not to act.
- Performance Metrics. The FY04 contract performance metrics are being changed to reflect the Office of Science focus on TRC and DART rates. The Lab's goal is to reach the 25<sup>th</sup> percentile rates for SIC 873 organizations by FY05. This is a very challenging goal, requiring reduction of the DART rate by a factor of two.
- Review of Laser Safety. The laser safety staff and laser users have reviewed the recent LBNL and BNL laser incidents and have identified several action items: review all laser standard operating procedures to ensure alignment procedures are detailed and adequate; review procedures to ensure that nominal hazard zone calculations are included; and, review the lab's laser safety policy to ensure it applies to graduate students and students under the age of 18 and to see if additional measures are necessary.
- Review of Laboratory ISMS. The Lab has identified work planning and hazard identification as "weak links." The Lab also identified electrical safety and materials handling as areas that deserve special attention. In addition, because the Lab's DART rate is high relative to the TRC rate, several pertinent Lab organizations are going to meet to review DART cases from the past three years to ensure that they are handling injuries in a way that minimizes lost days.